CONSTRUCTION MATERIALS

TECHNOLOGIES

LABORATORY TEST RESULTS

Report for: Winkler USA
88 South State Street
Hackensack, NJ 07601

Attention: Paul Sancraian

Product ID(s):	Wingum Plus H2O	**Manufacturer:**	Winkler USA
Date(s) Received:	Feb. 18, 2015 May 13, 2015	**Sampling:**	Winkler SRL
PRI-CMT Project No.:	WNKL-016-02-01	**Date(s) Tested:**	Feb. 19, 2015 – Jul. 16, 2015

Subject: Evaluate *Winkler USA's Wingum Plus H2O* for compliance to **ASTM D 6083: *Standard Specification for Liquid Applied Acrylic Coating Used in Roofing***.

Test Methods: Testing was completed as described in ASTM D 6083-05$^{\varepsilon 1}$: *Standard Specification for Liquid Applied Acrylic Coating Used in Roofing*. Test methods assigned or referenced include ASTM C 794: *Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants*; ASTM D 471: *Test Method for Rubber Property-Effect Liquids*; ASTM D 522: *Test Method for Mandrel Bend Test of Attached Organic Coatings*; ASTM D 562: *Test Method for Consistency of Paints Using the Stormer Viscometer*; ASTM D 624: *Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomer*; ASTM D 1644: *Test Method for Nonvolatile Content of Varnishes*; ASTM D 1653: *Test Method for Water Vapor Transmission of Organic Coated Films*; ASTM D 2196: *Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield) Viscometer*; ASTM D 2370: *Test Method for Tensile Properties of Organic Coatings;* ASTM D 2697: *Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings*; ASTM D 4798: *Test Method for Accelerated Weathering Test Conditions and Procedures for Bitumen Materials (Xenon-Arc Method)*; and ASTM G 21: *Standard Practice for Determining Resistance of Synthetic Polymer Materials to Fungi*.

Product Sampling: Sample was provided by Winkler SRL.

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Results of Testing:

ASTM D 6083

Property	Test Method	Result	Requirement
Liquid Property Requirements			
Viscosity – Stormer-Type (KU) Temperature @ 77°F	ASTM D 562 Method A Procedure A	> 141	85 - 141
Viscosity – Brookfield-Type (cps) LV series viscometer Spindle #4; Speed 6rpm; Temperature 77°F	ASTM D 2196 Method A	26,894	12,000 - 85,000
Volume Solids (%) Analyzed in duplicate	ASTM D 2697	60	≥ 50
Weight Solids (%) Analyzed in duplicate	ASTM D 1644 Method A	72	≥ 60
Film Physical Property Requirements			
Tensile Properties 10 specimens; 3.0” long x 0.5” wide x 20mil dry film Conditioned 336±12h @ 73.4±3.6°F & 50±10%RH Test Speed 1.0±0.2”/min Test Condition 73.4±3.6°F & 50±10%RH	ASTM D 2370		
Initial Percent Elongation (break) (%)		438	≥ 100
Initial Tensile Strength (psi)		205	≥ 200
Final Percent Elongation (break) (%) Accelerated Weathering – 1,000h		247	≥ 100
Permeance (perms) 3 specimens; 20mil dry film Conditioned 336±12h @ 73.4±3.6°F & 50±10%RH Test Chamber @ 73.4±3.6°F & 50±10%RH Tested in an inverted position	ASTM D 1653 Method B Condition A	10	≤ 50
Water Swelling (% mass) 3 specimens; 1” x 2” x 20mil dry film Immersed in distilled water for 168±4h @ 73.4±3.6°F	ASTM D 471	20	≤ 20

Continued on the following

Property	Test Method	Result	Requirement
Wet Adhesion to Specified Substrates 4 specimens; 1” wide x 20mil dry film Conditioned 336±12h @ 73.4±3.6°F & 50±10%RH Immersed in distilled water for 168±4h @ 73.4±3.6°F Test Speed 2.0”/min Test Condition 73.4±3.6°F & 50±10%RH	ASTM C 794		
Wet Adhesion to Galvanized Steel (pli) direct to substrate		8.4	≥ 2.0
Fungi Resistance (rating)	ASTM G 21	0	0
Tear Resistance (lbf/in) 3 specimens; Type C (Die C) x 20mil dry film Conditioned 336±12h @ 73.4±3.6°F & 50±10%RH Test Speed 20±2.0”/min Test Condition 73.4±3.6°F & 50±10%RH	ASTM D 624	106	≥ 60
Low Temperature Flexibility *[Pass/Fail]* 2 specimens; 3” x 6” panels x 14mil dry film Conditioned 72h @ 73.4±3.6°F & 50±10%RH followed by 120h @ 122°F Accelerated Weathering - 1,000h Tested 180° around 1/2" mandrel in 1s @ -15°F	ASTM D 522 Method B	Pass	Pass
Accelerated Weathering – 1,000h *[Pass/Fail]*	ASTM D 4798	Pass	No Cracking or Checking

Note(s): None.

Statement of Compliance: This product complies with the film physical property requirements of **ASTM D 6083:** ***Standard Specification for Liquid Applied Acrylic Coating Used in Roofing***.

Limitation: See results table for information regarding acceptable substrates as well as applicable primers and/or base coats.

Signed: Brad Grzybowski
Managing Director

Date: 07/23/15

Signed: Duc T. Nguyen
Florida Registered Professional Engineer
P.E. Number: 65034

Date: 7/23/2015

THANH NGUYEN LICENSE No 65034 STATE OF FLORIDA PROFESSIONAL ENGINEER

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	07/23/2015	4	NA

END OF REPORT